

SYSLUK

DECUS Program Library Write-up

DECUS No. 8-141

Abstract

SYSLUK is a four page utility program for examining and modifying blocks on the system I/O device (i.e., DF32 disk or TC01 DECTape). Its operation is independent of whichever monitor head is resident, provided either is there. The user has the facility to examine and modify locations and to perform masked searches.

Expressions

Any sequence of octal digits typed is considered an expression whose value is defined by the last four digits. For instance:

| <u>Typed</u> | <u>Value</u> |
|--------------|--------------|
| 13000 | 3000 |
| 75 | 75 |
| 1230456 | 456 |

Examination

Locations on the system device are addressed by block number (BLOCK) and block address (BLKADR - address within a block). The format for specifying such an address is "BLOCK.BLKADR," where both BLOCK and BLKADR are expressions. If a "." is not typed, BLOCK is assumed to be the last block opened, and the expression typed is taken for BLKADR. To examine a location, the appropriate address expression is entered, followed by a "/". The location's contents are then printed by SYSLUK.

Examples:

| <u>Typed</u> | <u>Action</u> |
|--------------|---------------------------------|
| 177.3/ | open location 3, block 177 |
| 20/ | open location 20, current block |

The program is designed specifically for the DEC Disk (and DECTape) Monitor System and thus accepts a maximum value of 200 for BLKADR. (Block size = 201, addresses 0 → 200.) Location 200 is the link word of the block.

Maximum block number is set to 2701. While this value is suitable for DECTape, interrogating disk blocks past the appropriate maximum (375 for 1 disk, 773 for 2 disks, etc.) will cause the program to hang in the system I/O routine (SYSIO). The program can be restarted at its starting address with no damage done, however.

Modification

When a location is open, typing an expression followed by a CR stores the expression as the new contents of the location (in a buffer - see "Mode of Operation").

Examine Next

Typing a LF causes the program to act as in "Modification," then open the next location and type its contents.

Search

Typing an address expression followed by "L" sets the lower limit block and block address for searching.

Similarly, typing "U" after an address expression sets the upper limit block and block address.

The search mask may be set by typing an expression followed by "M."

Searches for (non-) matches are requested by typing an expression followed by (<)>. Locations between the lower and upper limits whose contents, when masked, are (not) equal to the inputted expression are printed out.

Searching may be halted at any time by hitting a keyboard key. The current block and block address will be set to the last location checked in the search.

Mode of Operation

When a block is requested that is not in the core buffer, the current block, if still open, is written back on the system device, and the new block is read in. Otherwise the current buffer contents are used. Therefore, modifications are made directly to the buffer, indirectly on the system device.

Closing Blocks

If the user does not wish to write the current block when he is finished examining and/or modifying it, typing "C" will inhibit writing the block, provided no location is open and nothing has been typed. This action will prevent write-lock errors on protected disk or tape. However, since SYSLUK is normally used with all write-protection off, "C" can be used to prevent unwanted changes from being made to the system device.

Return to Monitor

Typing < CTRL > C causes SYSLUK to first write the current block (subject to write-inhibit, above) then transfer control to the resident monitor. SYSLUK also reads one block (after writing, before monitor return), but this need not concern the user.

Errors

Illegal Character: a "?" is typed, followed by CR/LF

Incorrect Syntax: the improper character is echoed, followed by "?" , CR/LF.

System Errors: Read: "RE" is typed, followed by CR/LF.

Write: "WE" is typed, followed by CR/LF. Write errors usually arise from write-locks being on.

"Mysterious Hang": Addressing blocks on nonexistent disks will always cause a hang in SYSIO (with PC > 7642). Restarting the program is a satisfactory solution.

Operation: SYSLUK occupies locations 2000-1177, with buffer space using 7377-7577, all in memory field 0. SYSLUK requires the system monitor head to be in core (as it will be if the program is loaded from disk or DECtape).

Start/Restart address is 2000.



DECUS

PROGRAM LIBRARY

DECUS NO.

8-141

TITLE

SYSLUK

AUTHOR

David M. Kristol

COMPANY

Moore School of Electrical Engineering
University of Pennsylvania
Philadelphia, Pennsylvania

DATE

July 12, 1968

SOURCE LANGUAGE

DECUS

DESIGN & DEVELOPMENT

